==========
Sequence Listing was accepted.
If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).
Reviewer: Keisha Douglas
Timestamp: [year=2008; month=10; day=22; hr=17; min=36; sec=29; ms=56;]
==========

Validated By CRFValidator v 1.0.3

Application No: 10519647 Version No: 1.0

Input Set:

Output Set:

Started: 2008-09-22 16:12:38.138
Finished: 2008-09-22 16:12:38.534
Elapsed: 0 hr(s) 0 min(s) 0 sec(s) 396 ms
Total Warnings: 1
Total Errors: 0
No. of SeqIDs Defined: 13
Actual SeqID Count: 13

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (13)

Sequence Listing

<110> Kelley, Robert F.
Hymowitz, Sarah
Lindstrom, Stephanie Ho

<120> APO-2 LIGAND/TRAIL VARIANTS AND USES THEREOF

<130> P1966R1

<140> 10519647
<141> 2008-09-22

<150> PCT/US03/019750
<151> 2003-06-23

<150> US 60/391,050
<151> 2002-06-24

<160> 13

<210> 1
<211> 281
<212> PRT
<213> Homo sapiens

<400> 1

```
 Met Ala Met Met Glu Val Gln Gly Gly Pro Ser Leu Gly Gln Thr
   1               5                  10                  15

 Cys Val Leu Ile Val Ile Phe Thr Val Leu Leu Gln Ser Leu Cys
                  20                  25                  30

 Val Ala Val Thr Tyr Val Tyr Phe Thr Asn Glu Leu Lys Gln Met
                  35                  40                  45

 Gln Asp Lys Tyr Ser Lys Ser Gly Ile Ala Cys Phe Leu Lys Glu
                  50                  55                  60

 Asp Asp Ser Tyr Trp Asp Pro Asn Asp Glu Glu Ser Met Asn Ser
                  65                  70                  75

 Pro Cys Trp Gln Val Lys Trp Gln Leu Arg Gln Leu Val Arg Lys
                  80                  85                  90

 Met Ile Leu Arg Thr Ser Glu Glu Thr Ile Ser Thr Val Gln Glu
                  95                 100                 105

 Lys Gln Gln Asn Ile Ser Pro Leu Val Arg Glu Arg Gly Pro Gln
                 110                 115                 120

 Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr
                 125                 130                 135

 Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys
                 140                 145                 150
```

Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser
155 160 165

Asn Leu His Leu Arg Asn Gly Glu Leu Val Ile His Glu Lys Gly
170 175 180

Phe Tyr Tyr Ile Tyr Ser Gln Thr Tyr Phe Arg Phe Gln Glu Glu
185 190 195

Ile Lys Glu Asn Thr Lys Asn Asp Lys Gln Met Val Gln Tyr Ile
200 205 210

Tyr Lys Tyr Thr Ser Tyr Pro Asp Pro Ile Leu Leu Met Lys Ser
215 220 225

Ala Arg Asn Ser Cys Trp Ser Lys Asp Ala Glu Tyr Gly Leu Tyr
230 235 240

Ser Ile Tyr Gln Gly Gly Ile Phe Glu Leu Lys Glu Asn Asp Arg
245 250 255

Ile Phe Val Ser Val Thr Asn Glu His Leu Ile Asp Met Asp His
260 265 270

Glu Ala Ser Phe Phe Gly Ala Phe Leu Val Gly
275 280

<210> 2
<211> 1042
<212> DNA
<213> Homo sapiens

<220>
<221> Unsure
<222> 447
<223> Unknown base

<400> 2
tttcctcact gactataaaa gaatagagaa ggaagggctt cagtgaccgg 50

ctgcctggct gacttacagc agtcagactc tgacaggatc atggctatga 100

tggaggtcca ggggggaccc agcctgggac agacctgcgt gctgatcgtg 150

atcttcacag tgctcctgca gtctctctgt gtggctgtaa cttacgtgta 200

ctttaccaac gagctgaagc agatgcagga caagtactcc aaaagtggca 250

ttgcttgttt cttaaaagaa gatgacagtt attgggaccc caatgacgaa 300

gagagtatga acagcccctg ctggcaagtc aagtggcaac tccgtcagct 350

cgttagaaag atgattttga gaacctctga ggaaaccatt tctacagttc 400

aagaaaagca acaaaatatt tctcccctag tgagagaaag aggtccncag 450

agagtagcag ctcacataac tgggaccaga ggaagaagca acacattgtc 500

ttctccaaac tccaagaatg aaaaggctct gggccgcaaa ataaactcct 550

gggaatcatc aaggagtggg cattcattcc tgagcaactt gcacttgagg 600

aatggtgaac tggtcatcca tgaaaaaggg ttttactaca tctattccca 650

aacatacttt cgatttcagg aggaaataaa agaaaacaca aagaacgaca 700

aacaaatggt ccaatatatt tacaaataca caagttatcc tgaccctata 750

ttgttgatga aaagtgctag aaatagttgt tggtctaaag atgcagaata 800

tggactctat tccatctatc aaggggggaat atttgagctt aaggaaaatg 850

acagaatttt tgtttctgta acaaatgagc acttgataga catggaccat 900

gaagccagtt ttttcggggc ctttttagtt ggctaactga cctggaaaga 950

aaaagcaata acctcaaagt gactattcag ttttcaggat gatacactat 1000

gaagatgttt caaaaaatct gaccaaaaca aacaaacaga aa 1042

<210> 3
<211> 468
<212> PRT
<213> Homo sapiens

<400> 3
Met Ala Pro Pro Pro Ala Arg Val His Leu Gly Ala Phe Leu Ala
  1   5   10   15

Val Thr Pro Asn Pro Gly Ser Ala Ala Ser Gly Thr Glu Ala Ala
                20   25   30

Ala Ala Thr Pro Ser Lys Val Trp Gly Ser Ser Ala Gly Arg Ile
                35   40   45

Glu Pro Arg Gly Gly Gly Arg Gly Ala Leu Pro Thr Ser Met Gly
                50   55   60

Gln His Gly Pro Ser Ala Arg Ala Arg Ala Gly Arg Ala Pro Gly
                65   70   75

Pro Arg Pro Ala Arg Glu Ala Ser Pro Arg Leu Arg Val His Lys
                80   85   90

Thr Phe Lys Phe Val Val Val Gly Val Leu Leu Gln Val Val Pro
                95   100   105

Ser Ser Ala Ala Thr Ile Lys Leu His Asp Gln Ser Ile Gly Thr
               110   115   120

Gln Gln Trp Glu His Ser Pro Leu Gly Glu Leu Cys Pro Pro Gly
               125   130   135

```
Ser His Arg Ser Glu Arg Pro Gly Ala Cys Asn Arg Cys Thr Glu
                140                 145                 150

Gly Val Gly Tyr Thr Asn Ala Ser Asn Asn Leu Phe Ala Cys Leu
                155                 160                 165

Pro Cys Thr Ala Cys Lys Ser Asp Glu Glu Glu Arg Ser Pro Cys
                170                 175                 180

Thr Thr Thr Arg Asn Thr Ala Cys Gln Cys Lys Pro Gly Thr Phe
                185                 190                 195

Arg Asn Asp Asn Ser Ala Glu Met Cys Arg Lys Cys Ser Thr Gly
                200                 205                 210

Cys Pro Arg Gly Met Val Lys Val Lys Asp Cys Thr Pro Trp Ser
                215                 220                 225

Asp Ile Glu Cys Val His Lys Glu Ser Gly Asn Gly His Asn Ile
                230                 235                 240

Trp Val Ile Leu Val Val Thr Leu Val Val Pro Leu Leu Leu Val
                245                 250                 255

Ala Val Leu Ile Val Cys Cys Cys Ile Gly Ser Gly Cys Gly Gly
                260                 265                 270

Asp Pro Lys Cys Met Asp Arg Val Cys Phe Trp Arg Leu Gly Leu
                275                 280                 285

Leu Arg Gly Pro Gly Ala Glu Asp Asn Ala His Asn Glu Ile Leu
                290                 295                 300

Ser Asn Ala Asp Ser Leu Ser Thr Phe Val Ser Glu Gln Gln Met
                305                 310                 315

Glu Ser Gln Glu Pro Ala Asp Leu Thr Gly Val Thr Val Gln Ser
                320                 325                 330

Pro Gly Glu Ala Gln Cys Leu Leu Gly Pro Ala Glu Ala Glu Gly
                335                 340                 345

Ser Gln Arg Arg Arg Leu Leu Val Pro Ala Asn Gly Ala Asp Pro
                350                 355                 360

Thr Glu Thr Leu Met Leu Phe Phe Asp Lys Phe Ala Asn Ile Val
                365                 370                 375

Pro Phe Asp Ser Trp Asp Gln Leu Met Arg Gln Leu Asp Leu Thr
                380                 385                 390

Lys Asn Glu Ile Asp Val Val Arg Ala Gly Thr Ala Gly Pro Gly
                395                 400                 405

Asp Ala Leu Tyr Ala Met Leu Met Lys Trp Val Asn Lys Thr Gly
                410                 415                 420
```

Arg Asn Ala Ser Ile His Thr Leu Leu Asp Ala Leu Glu Arg Met
425 430 435

Glu Glu Arg His Ala Lys Glu Lys Ile Gln Asp Leu Leu Val Asp
440 445 450

Ser Gly Lys Phe Ile Tyr Leu Glu Asp Gly Thr Gly Ser Ala Val
455 460 465

Ser Leu Glu

<210> 4
<211> 1407
<212> DNA
<213> Homo sapiens

<400> 4
atggcgccac caccagctag agtacatcta ggtgcgttcc tggcagtgac 50

tccgaatccc gggagcgcag cgagtgggac agaggcagcc gcggccacac 100

ccagcaaagt gtggggctct tccgcgggga ggattgaacc acgaggcggg 150

ggccgaggag cgctccctac ctccatggga cagcacggac ccagtgcccg 200

ggcccgggca gggcgcgccc caggacccag gccggcgcgg gaagccagcc 250

ctcggctccg ggtccacaag accttcaagt ttgtcgtcgt cggggtcctg 300

ctgcaggtcg tacctagctc agctgcaacc atgatcaatc aattggcaca 350

aattggcaca cagcaatggg aacatagccc tttgggagag ttgtgtccac 400

caggatctca tagatcagaa cgtcctggag cctgtaaccg gtgcacagag 450

ggtgtgggtt acaccaatgc ttccaacaat ttgtttgctt gcctcccatg 500

tacagcttgt aaatcagatg aagaagagag aagtccctgc accacgacca 550

ggaacacagc atgtcagtgc aaaccaggaa ctttccggaa tgacaattct 600

gctgagatgt gccggaagtg cagcacaggg tgccccagag ggatggtcaa 650

ggtcaaggat tgtacgccct ggagtgacat cgagtgtgtc cacaaagaat 700

caggcaatgg acataatata tgggtgattt tggttgtgac tttggttgtt 750

ccgttgctgt tggtggctgt gctgattgtc tgttgttgca tcggctcagg 800

ttgtggaggg gaccccaagt gcatggacag ggtgtgtttc tggcgcttgg 850

gtctcctacg agggcctggg gctgaggaca atgctcacaa cgagattctg 900

agcaacgcag actcgctgtc cactttcgtc tctgagcagc aaatggaaag 950

ccaggagccg gcagatttga caggtgtcac tgtacagtcc ccaggggagg 1000

cacagtgtct gctgggaccg gcagaagctg aagggtctca gaggaggagg 1050

ctgctggttc cagcaaatgg tgctgacccc actgagactc tgatgctgtt 1100

ctttgacaag tttgcaaaca tcgtgccctt tgactcctgg gaccagctca 1150

tgaggcagct ggacctcacg aaaaatgaga tcgatgtggt cagagctggt 1200

acagcaggcc caggggatgc cttgtatgca atgctgatga aatgggtcaa 1250

caaaactgga cggaacgcct cgatccacac cctgctggat gccttggaga 1300

ggatggaaga gagacatgca aaagagaaga ttcaggacct cttggtggac 1350

tctggaaagt tcatctactt agaagatggc acaggctctg ccgtgtcctt 1400

ggagtga 1407

<210> 5
<211> 411
<212> PRT
<213> Homo sapiens

<400> 5

```
Met Glu Gln Arg Gly Gln Asn Ala Pro Ala Ala Ser Gly Ala Arg
  1               5                  10                  15

Lys Arg His Gly Pro Gly Pro Arg Glu Ala Arg Gly Ala Arg Pro
                20                  25                  30

Gly Leu Arg Val Pro Lys Thr Leu Val Leu Val Val Ala Ala Val
                35                  40                  45

Leu Leu Leu Val Ser Ala Glu Ser Ala Leu Ile Thr Gln Gln Asp
                50                  55                  60

Leu Ala Pro Gln Gln Arg Ala Ala Pro Gln Gln Lys Arg Ser Ser
                65                  70                  75

Pro Ser Glu Gly Leu Cys Pro Pro Gly His His Ile Ser Glu Asp
                80                  85                  90

Gly Arg Asp Cys Ile Ser Cys Lys Tyr Gly Gln Asp Tyr Ser Thr
                95                 100                 105

His Trp Asn Asp Leu Leu Phe Cys Leu Arg Cys Thr Arg Cys Asp
               110                 115                 120

Ser Gly Glu Val Glu Leu Ser Pro Cys Thr Thr Thr Arg Asn Thr
               125                 130                 135

Val Cys Gln Cys Glu Glu Gly Thr Phe Arg Glu Glu Asp Ser Pro
               140                 145                 150

Glu Met Cys Arg Lys Cys Arg Thr Gly Cys Pro Arg Gly Met Val
               155                 160                 165
```

```
Lys Val Gly Asp Cys Thr Pro Trp Ser Asp Ile Glu Cys Val His
                170                 175                 180

Lys Glu Ser Gly Ile Ile Ile Gly Val Thr Val Ala Ala Val Val
                185                 190                 195

Leu Ile Val Ala Val Phe Val Cys Lys Ser Leu Leu Trp Lys Lys
                200                 205                 210

Val Leu Pro Tyr Leu Lys Gly Ile Cys Ser Gly Gly Gly Gly Asp
                215                 220                 225

Pro Glu Arg Val Asp Arg Ser Ser Gln Arg Pro Gly Ala Glu Asp
                230                 235                 240

Asn Val Leu Asn Glu Ile Val Ser Ile Leu Gln Pro Thr Gln Val
                245                 250                 255

Pro Glu Gln Glu Met Glu Val Gln Glu Pro Ala Glu Pro Thr Gly
                260                 265                 270

Val Asn Met Leu Ser Pro Gly Glu Ser Glu His Leu Leu Glu Pro
                275                 280                 285

Ala Glu Ala Glu Arg Ser Gln Arg Arg Arg Leu Leu Val Pro Ala
                290                 295                 300

Asn Glu Gly Asp Pro Thr Glu Thr Leu Arg Gln Cys Phe Asp Asp
                305                 310                 315

Phe Ala Asp Leu Val Pro Phe Asp Ser Trp Glu Pro Leu Met Arg
                320                 325                 330

Lys Leu Gly Leu Met Asp Asn Glu Ile Lys Val Ala Lys Ala Glu
                335                 340                 345

Ala Ala Gly His Arg Asp Thr Leu Tyr Thr Met Leu Ile Lys Trp
                350                 355                 360

Val Asn Lys Thr Gly Arg Asp Ala Ser Val His Thr Leu Leu Asp
                365                 370                 375

Ala Leu Glu Thr Leu Gly Glu Arg Leu Ala Lys Gln Lys Ile Glu
                380                 385                 390

Asp His Leu Leu Ser Ser Gly Lys Phe Met Tyr Leu Glu Gly Asn
                395                 400                 405

Ala Asp Ser Ala Leu Ser
                410
```

<210> 6
<211> 440
<212> PRT
<213> Homo sapiens

<400> 6

```
Met Glu Gln Arg Gly Gln Asn Ala Pro Ala Ala Ser Gly Ala Arg
  1               5                  10                  15

Lys Arg His Gly Pro Gly Pro Arg Glu Ala Arg Gly Ala Arg Pro
                 20                  25                  30

Gly Pro Arg Val Pro Lys Thr Leu Val Leu Val Val Ala Ala Val
                 35                  40                  45

Leu Leu Leu Val Ser Ala Glu Ser Ala Leu Ile Thr Gln Gln Asp
                 50                  55                  60

Leu Ala Pro Gln Gln Arg Ala Ala Pro Gln Gln Lys Arg Ser Ser
                 65                  70                  75

Pro Ser Glu Gly Leu Cys Pro Pro Gly His His Ile Ser Glu Asp
                 80                  85                  90

Gly Arg Asp Cys Ile Ser Cys Lys Tyr Gly Gln Asp Tyr Ser Thr
                 95                 100                 105

His Trp Asn Asp Leu Leu Phe Cys Leu Arg Cys Thr Arg Cys Asp
                110                 115                 120

Ser Gly Glu Val Glu Leu Ser Pro Cys Thr Thr Thr Arg Asn Thr
                125                 130                 135

Val Cys Gln Cys Glu Glu Gly Thr Phe Arg Glu Glu Asp Ser Pro
                140                 145                 150

Glu Met Cys Arg Lys Cys Arg Thr Gly Cys Pro Arg Gly Met Val
                155                 160                 165

Lys Val Gly Asp Cys Thr Pro Trp Ser Asp Ile Glu Cys Val His
                170                 175                 180

Lys Glu Ser Gly Thr Lys His Ser Gly Glu Ala Pro Ala Val Glu
                185                 190                 195

Glu Thr Val Thr Ser Ser Pro Gly Thr Pro Ala Ser Pro Cys Ser
                200                 205                 210

Leu Ser Gly Ile Ile Ile Gly Val Thr Val Ala Ala Val Val Leu
                215                 220                 225

Ile Val Ala Val Phe Val Cys Lys Ser Leu Leu Trp Lys Lys Val
                230                 235                 240

Leu Pro Tyr Leu Lys Gly Ile Cys Ser Gly Gly Gly Gly Asp Pro
                245                 250                 255

Glu Arg Val Asp Arg Ser Ser Gln Arg Pro Gly Ala Glu Asp Asn
                260                 265                 270

Val Leu Asn Glu Ile Val Ser Ile Leu Gln Pro Thr Gln Val Pro
                275                 280                 285
```

```
 Glu Gln Glu Met Glu Val Gln Glu Pro Ala Glu Pro Thr Gly Val
                 290                 295                 300

 Asn Met Leu Ser Pro Gly Glu Ser Glu His Leu Leu Glu Pro Ala
                 305                 310                 315

 Glu Ala Glu Arg Ser Gln Arg Arg Arg Leu Leu Val Pro Ala Asn
                 320                 325                 330

 Glu Gly Asp Pro Thr Glu Thr Leu Arg Gln Cys Phe Asp Asp Phe
                 335                 340                 345

 Ala Asp Leu Val Pro Phe Asp Ser Trp Glu Pro Leu Met Arg Lys
                 350                 355                 360

 Leu Gly Leu Met Asp Asn Glu Ile Lys Val Ala Lys Ala Glu Ala
                 365                 370                 375

 Ala Gly His Arg Asp Thr Leu Tyr Thr Met Leu Ile Lys Trp Val
                 380                 385                 390

 Asn Lys Thr Gly Arg Asp Ala Ser Val His Thr Leu Leu Asp Ala
                 395                 400                 405

 Leu Glu Thr Leu Gly Glu Arg Leu Ala Lys Gln Lys Ile Glu Asp
                 410                 415                 420

 His Leu Leu Ser Ser Gly Lys Phe Met Tyr Leu Glu Gly Asn Ala
                 425                 430                 435

 Asp Ser Ala Met Ser
                 440
```

<210> 7
<211> 161
<212> PRT
<213> Homo sapiens

<400> 7

```
 Arg Val Ala Ala His Ile Thr Gly Thr Arg Gly Arg Ser Asn Thr
   1               5                  10                  15

 Leu Ser Ser Pro Asn Ser Lys Asn Glu Lys Ala Leu Gly Arg Lys
                  20                  25                  30

 Ile Asn Ser Trp Glu Ser Ser Arg Ser Gly His Ser Phe Leu Ser
                  35                  40
```